

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED
OMB No. 1004-0136
Expires March 31, 2007

5. Lease Serial No.

Jicarilla Contract 151

6. If Indian, Allottee, or Tribe Name

Jicarilla Apache

7. If Unit or C.A. Agreement, Name and No.

070 FARMINGTON NM

8. Lease Name and Well No.

Jicarilla 151 #6F

9. API Well No.

30-039-29946

10. Field and Pool, or Exploratory

Basin Dakota

11. Sec., T., R., M., or Blk. and Survey or Area

Section 9, T-26-N, R-5-W

12. County or Parish

Rio Arriba

13. State

NM

1a. Type of Work: ☒ DRILL

☐ REENTER

1b. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other

☒ Single Zone ☐ Multiple Zone

2. Name of Operator

CDX RIO, LLC

3a. Address

2010 Afton Place, Farmington, New Mexico 87401

3b. Phone No. (include area code)

(505) 326-3003

4. Location of Well (Report location clearly and in accordance with any State requirements. *)

At surface 2300' FNL, 2450' FEL, Lat: 36 30' 09.6" N, Long: 107 21' 49.9" W

At proposed prod. zone

14. Distance in miles and direction from nearest town or post office*

30 miles from Lindrith, New Mexico

15. Distance from proposed*
location to nearest
property or lease line, ft.
(Also to nearest drig. unit line, if any) 2300'

16. No. of Acres in lease

17. Spacing Unit dedicated to this well

320.00
349.89 E/2

18. Distance from proposed location*
to nearest well, drilling, completed,
applied for, on this lease, ft.

300'

19. Proposed Depth

7983'

20. BLM/BIA Bond No. on file

National Bond on file

21. Elevations (Show whether DF, KDB, RT, GL, etc.)

6979' GR

22. Approximate date work will start*

23. Estimated duration

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

1. Well plat certified by a registered surveyor.

2. A Drilling Plan.

3. A Surface Use Plan (if the location is on National Forest System Lands, the
SUPO shall be filed with the appropriate Forest Service Office).

4. Bond to cover the operations unless covered by an existing bond on file (see
Item 20 above).

5. Operator certification.

6. Such other site specific information and/or plans as may be required by the
authorized officer.

25. Signature

Richard Corcoran

Name (Printed/Typed)

Richard Corcoran

Date

6-1-06

Title

Land Manager

Approved by (Signature)

AFM

Name (Printed/Typed)

Office

FEO

Date

6/27/11

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

*(Instructions on reverse)

* Hold C-104 for NSL order
* Submit revised C-102

NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENT

AUG 09 2011

NMOCD

This action is subject to technical and
procedural review pursuant to 43 CFR 3165.9
and appeal pursuant to 43 CFR 3165.4



DRILLING OPERATIONS AUTHORIZED ARE
SUBJECT TO COMPLIANCE WITH ATTACHED
"GENERAL REQUIREMENTS".

DISTRICT I
1625 N. French Dr., Hobbs, N.M. 88240

DISTRICT II
1301 W. Grand Ave., Artesia, N.M. 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410

DISTRICT IV
1220 South St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102

Revised June 10, 2003

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-038- 29946		² Pool Code 71599		³ Pool Name Basin Dakota	
⁴ Property Code 33458		⁵ Property Name JICARILLA 151			⁶ Well Number 6F
⁷ OGRID No. 222374		⁸ Operator Name CDX RIO, LLC			⁹ Elevation 6979'

¹⁰ Surface Location



UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
G	9	26-N	5-W		2300'	NORTH	2450'	EAST	RIO ARriba

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
¹² Dedicated Acres DK - E/319.88- 320.00		¹³ Joint or Infill Y		¹⁴ Consolidation Code		¹⁵ Order No.			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

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CALC'D COR. BY DBL. PORP.	N 89-53-42 W 5354.3' (C)	2300'	2450'	N 00-53-06 E 5305.1' (C)	¹⁷ OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief  Signature Richard Corcoran Printed Name Land Manager rich.corcoran@cdxgas.com Title and E-mail Address 6-1-06 Date
					¹⁸ SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. OCTOBER Date of Survey Signature and Seal  Certificate Number

Jicarilla 151 6F
General Drilling Plan
CDX Rio, LLC
Rio Arriba County, New Mexico

1. LOCATION:

2300' FNL & 2450' FEL, Section 9, T26N, R5W
Rio Arriba County, New Mexico
UGL: 6979' Estimated KB: 6991'

Field: Basin Dakota
Surface: Jicarilla Contract #151
Minerals: Jicarilla Contract #151

2. SURFACE FORMATION – SAN JOSE, ESTIMATED TOPS AND WATER, OIL, GAS OR MINERAL BEARING FORMATIONS (TVD):

Formation Tops	Top MD (KB)	Top Subsea (KB)	Rock Type	Comments
Ojo Alamo Sandstone	2746	4245	Sandstone	Possible Differential Sticking, Gas, Water
Kirtland Formation	3169	3822	Shale	
Fruitland Formation	3401	3590	Coal, Shale, Sandstone	Possible Lost Circulation Zone, Gas, Water
Pictured Cliffs Sandstone	3562	3429	Sandstone	Possible Lost Circulation Zone, Gas, Water
Lewis Shale	3646	3345	Shale	Sloughing Shale
Huerfano Bentonite Bed	4025	2966	Shale	Bentonite Shale
Chacra Interval	4453	2538	Siltstone	Gas, Water
Mesaverde Formation (MVRD)	5222	1769	Coal, Sandstone, Shale	Possible Lost Circulation, Gas, Water
Cliff House Sandstone (MVRD)	5222	1769	Sandstone	Possible Lost Circulation, Gas, Water
Menefee Member (MVRD)	5322	1669	Coal, Sandstone, Shale	Possible Lost Circulation, Gas, Water
Point Lookout Sandstone(MVRD)	5721	1270	Sandstone	Possible Lost Circulation, Gas, Water
Mancos Shale	5938	1053	Shale	Sloughing Shale
Gallup Formation (GLLP)	6923	68	Siltstone, Shale	Gas, Oil
Greenhorn Limestone	7662	-671	Limestone	Gas, Oil
Graneros Shale	7725	-734	Shale	Gas, Oil, Water
Dakota Formation (DKOT)	7763	-772	Sandstone, Shale, Coal	Gas, Oil, Water
Two Wells Sandstone (DKOT)	7763	-772	Sandstone	Gas, Oil, Water
Paguate Sandstone (DKOT)	7842	-851	Sandstone	Gas, Oil, Water
Upper Cubero Sandstone(DKOT)	7879	-888	Sandstone	Gas, Oil, Water
Main Body (DKOT)	7915	-924	Shale, Sandstone	Gas, Oil, Water
Lower Cubero (DKOT)	7956	-965	Shale, Sandstone	Gas, Oil, Water
Burro Canyon (DKOT)	7990	-999	Sandstone	Gas, Water - TD immediately below L. Cubero.
Morrison Formation			Shale, Sandstone	On-site pick when black/brown cuttings start.
Proposed TD	7983	-992		Avoid wet Burro Canyon.

1 *85-26-06*

All fresh water and prospectively valuable minerals encountered during drilling will be recorded by depth and adequately protected.

3. **PRESSURE CONTROL EQUIPMENT:**

BOP equipment will be tested to its rated working pressure or 70-percent of the internal yield of the surface casing, but not to exceed 1,000 psi. See attachments for BOP and choke manifold diagrams.

Production Hole BOP Requirements and Test Plan

11" – 2,000 psi single ram (blind)

11" – 2,000 psi single ram (pipe)

Test as follows:

a) Pipe rams:	1,000 psi (High)	250 psi (low)
b) Choke manifold and lines:	1,000 psi (High)	250 psi (low)

All ram type preventers and related equipment will be hydraulically tested at nipple-up. They will also be retested in either of the following events:

- A pressure seal is broken.
- 30 days have elapsed since the last successful test of the equipment.

Furthermore, BOP's will be checked daily as to mechanical operating condition. All ram type preventers will have hand wheels, which will be operative and accessible at the time the preventers are installed. See attached Exhibit for details on the BOP equipment.

AUXILIARY EQUIPMENT:

- a) Manually operated kelly cock (upper and lower)
- b) Full opening manually operated safety valves in the full open position, capable of fitting all drill stem connections.

4. CASING AND CEMENTING DESIGN:

Casing Program:

<u>Hole Size</u>	<u>Depth</u>	<u>Casing Size</u>
12 1/4"	250'	9 5/8"
8 3/4"	3925' +/- Lewis seat	7"
6 1/4"	7983'	4 1/2"

Csg Size	Casing Type	Top (MD)	Bottom (MD)	Wt. (lb./ft)	Grade	Thread	Condition
9-5/8"	Surface	0'	250'	36.0	J55	STC	New
7"	Intermediate	0'	3925' +/-	23.0	N80	LTC	New
4 1/2"	Prod Liner	3805'	7983'	11.6	N80	LTC	New

OD	Casing Data			Collapse (psi)	Burst (psi)	Min. Tensile (Lbs.)
	Wt/Ft	Grade	Thread			
9-5/8"	36.0 lbs.	J55	STC	2,020	3,520	394,000
7"	23.0 lbs.	N80	LTC	3,830	6,340	442,000
4 1/2"	11.6 lbs.	N80	LTC	2,010 6,350	7,780	223,000

MINIMUM CASING DESIGN FACTORS:

COLLAPSE: 1.125
 BURST: 1.00
 TENSION: 1.80

Area Fracture Gradient Range: 0.7 – 0.8 psi/foot
 Maximum anticipated reservoir pressure: 2,500 psi
 Maximum anticipated mud weight: 9.0 ppg
 Maximum surface treating pressure: 3,500 - 3,750 psi

Float Equipment:

Surface Casing: Guide shoe on bottom and 3 centralizers on the bottom 3 joints.

Intermediate Casing: Float shoe on bottom joint and a float collar one joint up from float shoe. One centralizer 10 ft above float shoe and nine centralizers spaced every joint above the float collar. Stage tool above the Kirtland formation. One centralizer below stage tool and one centralizer above stage tool.

Production Casing: 4 1/2" cement nosed guide shoe and a float collar on top of bottom joint with centralizers over potential hydrocarbon bearing zones.

Cementing Program:

9-5/8" Surface casing: 250'

165 sxs Type III cement with 2% CaCl₂, 1/4#/sx celloflake. 100% excess to circulate cement to surface. WOC 12 hrs.

Slurry weight: 15.2 ppg
Slurry yield: 1.27 ft³/sack

Volume basis:	40' of 9-5/8" shoe joint	17.4 cu ft
	250' of 12-1/4" x 9-5/8" annulus	96.1 cu ft
	<u>100% excess (annulus)</u>	<u>96.1 cu ft</u>
	Total	209.6 cu ft

Note:

1. Design top of cement is the surface.
2. Have available 100 sx Type III cement with 2% CaCl₂ for top out purposes.

7" Intermediate Casing: 3925'

1st Stage: 138 sacks of Type III cement: 3925' - 3069' (856')

Slurry weight: 14.5 ppg Annular Vol = 128.7 cf + 64.4 cf (50% Access)
Slurry yield: 1.4 ft³/sack = 193.1 cf

2nd Stage: (Stage tool at 3069' +/-): 358 sacks of Premium Lite FM

Slurry weight: 12.4 ppg Volume = 686.2 cf
Slurry yield: 1.92 ft³/sack

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<u>Volume Basis:</u>	40' of 7" shoe joint	8.8 cu ft
	<u>3675' of 7" x 8 3/4" annulus</u>	<u>552.5 cu ft</u>
	250' of 7" x 9 5/8" csg	41.7 cu ft
	<u>50% excess (open hole annulus)</u>	<u>276.3 cu ft</u>
	Total	879.3 cu ft

Note:

1. Design top of cement is surface.
2. Actual cement volumes to be based on caliper log plus 30%.

4 1/2" Production casing: Air Drilled Hole 3925' – 7983' (4058')

Stage 1: 262 sacks of Premium Lite High Strength FM out guide shoe.

Slurry weight: 12.3 ppg

Slurry yield: 2.13 ft³/sack

Volume basis:	40' of 4 1/2" shoe joint	3.5 cu ft
	<u>4058' of 4 1/2" x 6 1/4" hole</u>	<u>416.4 cu ft</u>
	120' of 4 1/2" x 7" casing	13.3 cu ft
	<u>30% excess (annulus)</u>	<u>124.9 cu ft</u>
	Total	558.1 cu ft

Note:

1. Design top of cement is 3805' +/- ft. or 120 ft. into 7" intermediate casing.
2. Actual cement volumes to be based on caliper log plus 30%.

5. MUD PROGRAM:

The surface hole will be drilled with spud mud. Gel and polymer sweeps will be used from surface to 250 feet as necessary to keep hole clean.

The intermediate hole will be drilled with water till mud up at about 2300 ft. From 2300' to 3925', intermediate casing depth, will be drilled with LSND mud. Anticipated mud weight ranges from 8.5 – 9.0 ppg. Mud weight will be increased as required to maintain hole stability and control gas influx.

The production hole will be drilled with air or air/mist.

Sufficient mud materials to maintain stable wellbore conditions (for either well control or lost circulation scenarios) will be maintained at the well site.

No chrome-based additives will be used in the mud system.

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6. EVALUATION PROGRAM:

Mud logger: None Planned

Testing: No DST is planned

Coring: None Planned

Electric logs:
Intermediate Hole: Non Planned

Production Hole: TMD-L or Open Hole Platform Express

7. ABNORMAL PRESSURE AND TEMPERATURE:

H ₂ S	None
Coal	Fruitland
Minerals	None
Water	None
Static BHT	175° F
Lost Circulation	Possible
Hole Deviation	None
Abnormal Pressures	None
Unusual Drilling Problems	None

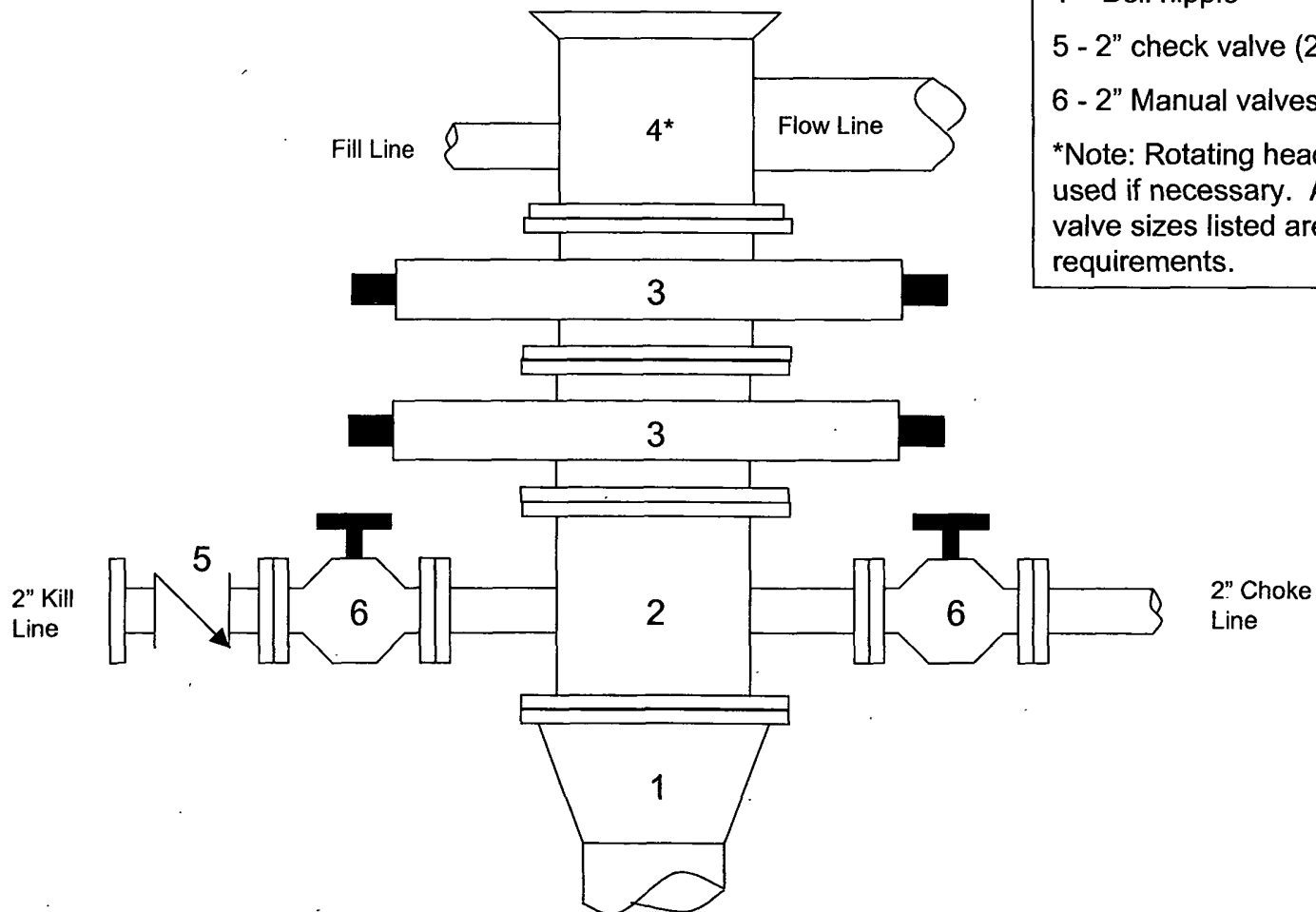
8. ANTICIPATED STARTING DATE: November 1, 2006

Anticipated duration: 16 days

Jicarilla 151 No. 6F

2000 psi BOP stack

Minimum requirements



Components

1 - Wellhead 9-5/8" (2M)

2 - Drilling spool 11" (2M)

3 - A double or two single rams with blinds on bottom 11" (2M)

4 - Bell nipple*

5 - 2" check valve (2M)

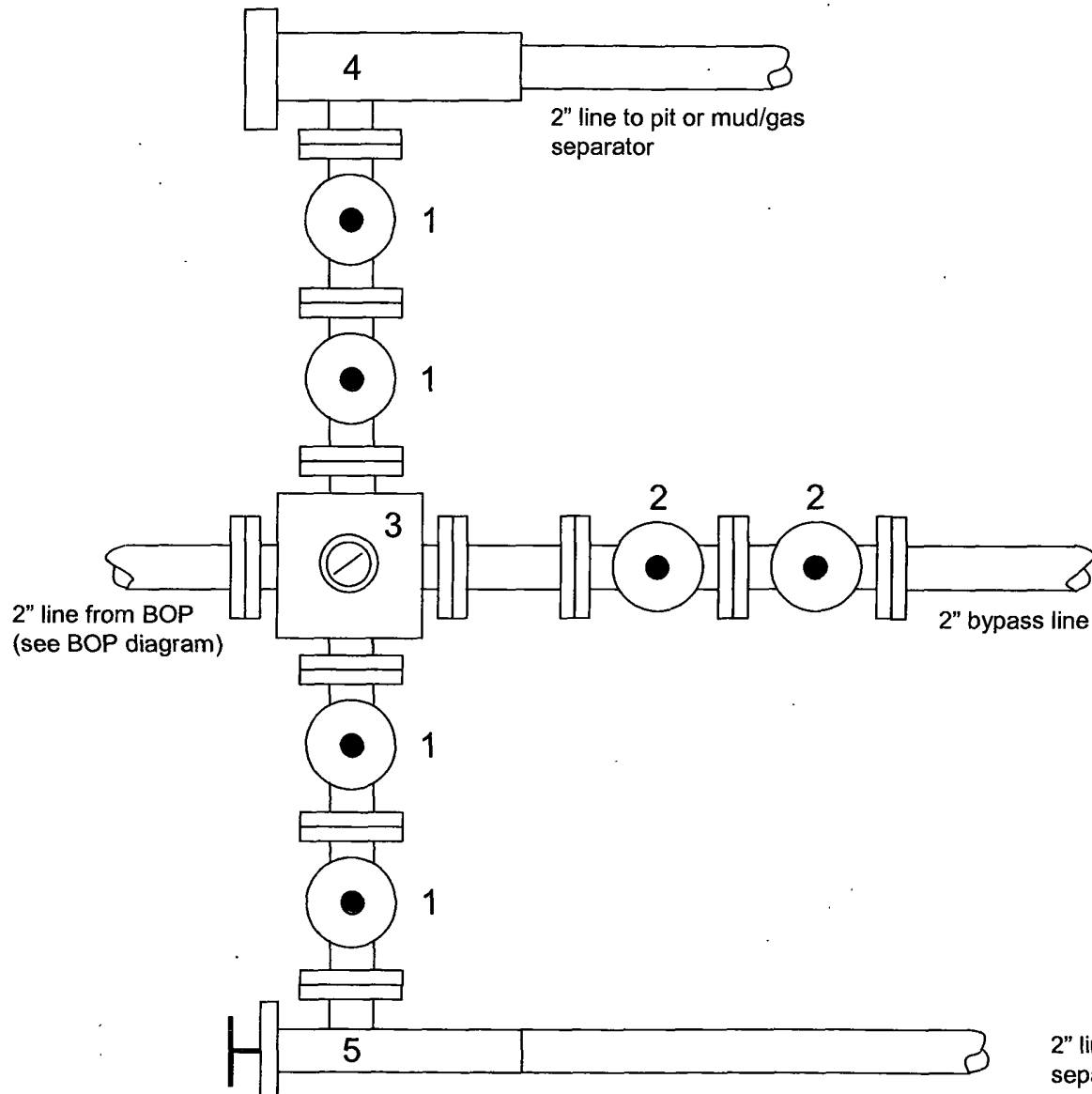
6 - 2" Manual valves (2M)

*Note: Rotating head may also be used if necessary. Also, all line and valve sizes listed are minimum requirements.

Jicarilla 151 No. 6F

2000 psi Choke Manifold

Minimum requirements



Components

1 – 2" Valve (2M)

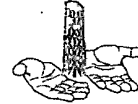
2 – 2" Valve (2M)

3 – Mud cross with gauge (2M) flanged below the gauge.

4 – Replaceable beam choke (2M)

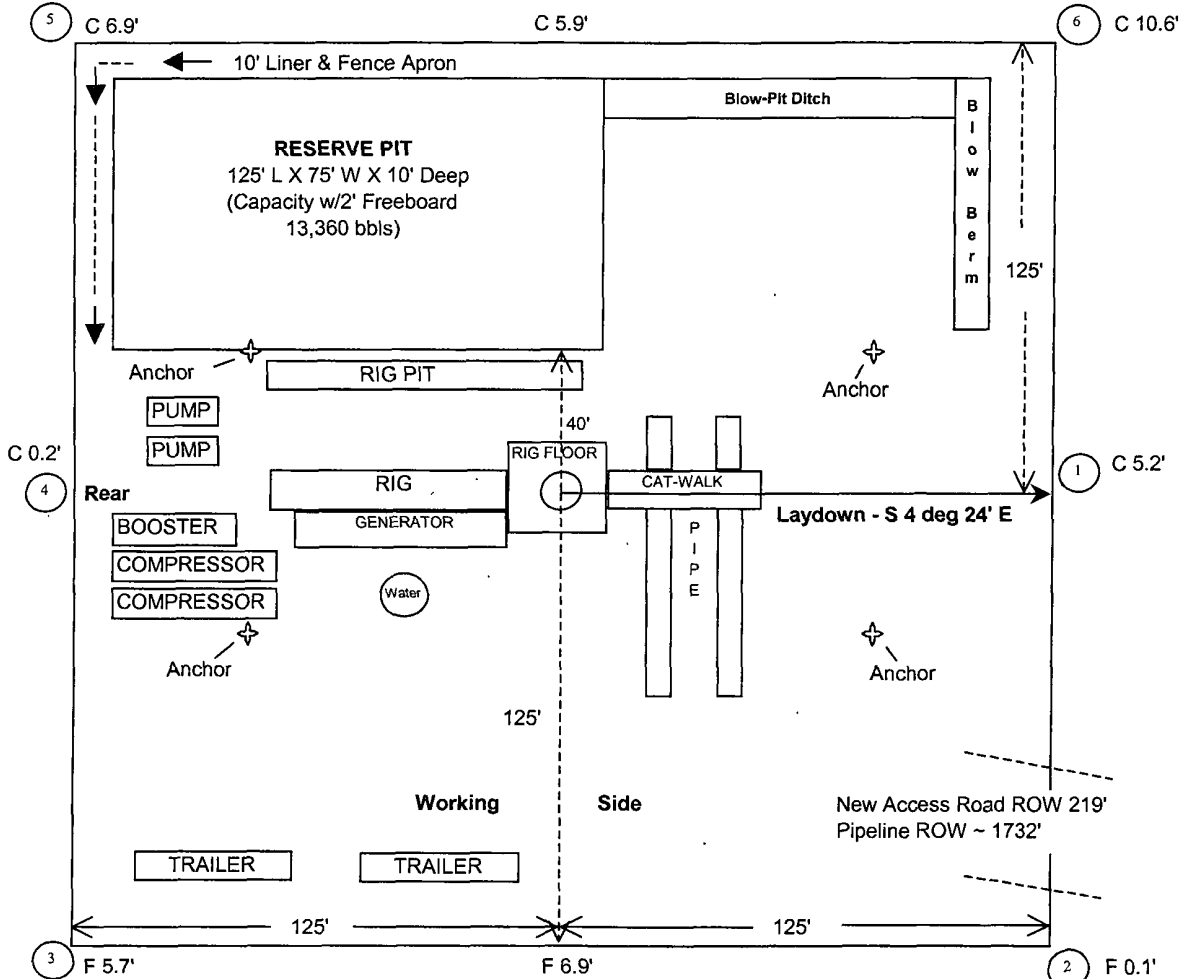
5 – Adjustable needle choke (2M)

Note: All line and valve sizes listed are minimum requirements.



Neeley Consulting Service, LLC
3001 Northridge Dr., Farmington, NM
505-486-0211

0' 50'
SCALE 1" = 50'



Construction Zone & Arche Buffer = 25' outside of location perimeter, all sides.

CDX RIO, LLC

Wellsite Layout Plat with Cut & Fills

Jicarilla 151 6F

2300' FNL & 2450' FEL

Sec 9, T26N, R5W, NMPM

Rio Arriba Co., New Mexico

Elevation: 6979' UGL

VICINITY MAP

CDX RIO, LLC

Jicarilla 151 6F

2300' FNL & 2450' FEL

Sec 9, T26N, R5W, NMPM

Rio Arriba County, New Mexico

Elevation: 6979' UGL

Scale: 1" ~ 2000'

Neeley Consulting Service, LLC

